

REMARKS/ARGUMENTS

I. STATUS OF THE CLAIMS

Claims 1-24 are pending in this application. Claims 1 and 13 are amended. Support for the amendment can be found in Figures 1 and 8, and page 12 lines 19-23. No new material is added.

II. REJECTION UNDER 35 U.S.C. 103(a)

A. Petersen *et al*, (U.S. 6,391,541) In view of Cheng *et al* (U.S. 6,071,394)

The Examiner has rejected claims 1, 4-14, 16, 17, and 20-24 under 35 U.S.C. 103(a) as being unpatentable over Petersen *et al.*, (U.S. Patent No. 6,391,541) in view of Cheng *et al.*, (U.S. Patent No. 6,071,394). The Applicants respectfully traverse this rejection because Petersen *et al* in view of Cheng *et al* does not teach or disclose all of the elements recited in independent claims 1 and 13 as presently recited.

The Examiner cites Petersen *et al*, as disclosing a cartridge for conducting thermocycling of fluids including a substantially planar heat conducting wall; a light transparent wall which is disposed substantially vertical to the heat conducting wall; a fluid inlet; a fluid outlet; a channel connecting the inlet and the outlet wherein the channel includes a protrusion such that the channel between the inlet and the outlet is longer than the shortest distance between the inlet and the outlet and avoids bubbles in the measuring section of the cartridge. *See*, Office Action page 3 lines 1-9.

With respect to independent claim 13, the Examiner cites Petersen *et al* as disclosing a cartridge as discussed above, and also includes a thermocycling unit ; a light source; a light detector; and a fluid providing unit. *See*, Office Action, page 4 lines 13-14; Petersen *et al.*, Figure 22 and column 13, line 56 to column 14 line 5.

The Examiner states that although Petersen *et al.* discloses an inlet and outlet communicated with a channel, the reference is silent as to the wall construction between the inlet and/or outlet and the channel. Specifically, Petersen does not disclose that the walls of the channel adjacent to the fluid inlet and fluid outlet form an angle of 100-150 degrees.

The Examiner cites Cheng *et al.*, as allegedly disclosing a flow cell chamber for a nucleic acid processing device that includes inlets and outlets and a channel wherein the walls between the inlet and the outlet form an angle greater than 90 degrees and less than 180 degrees. *See*, Office Action, page 3 lines 15-18; Cheng, *et al.*, Figure 11b.

Cheng et al does not teach or suggest walls *adjacent* to the inlet and outlet having angles of 100 to 150 degrees.

The Applicants respectfully disagree with the Examiner's characterization of Cheng *et al.* The Applicants read Cheng *et al.* as describing tubing (18) attached to the inlet and outlet ports *situated in the roof wall* (42) of a U-shaped flow chamber. The roof walls adjacent to the inlet and outlet ports in Cheng *et al.* appear to form an angle of 90 degrees with the walls of the inlet or outlet port.

To achieve reliable filling of the flow cell without air bubbles, the present claims recite that the walls of the channel adjacent to the inlet and/or outlet port form an angle between 100° and 150° with the walls of the fluid inlet and/or fluid outlet port. In referring to walls that "form an angle greater than 90° and less than 180° as shown in Figure 11b", it appears that the Examiner is referring to the walls adjacent to the left-most wall in the figure. While these walls do form an angle greater than 90° with the left-most wall, the left-most wall in Figure 11b is not an inlet or outlet. The inlet and outlet ports are depicted as circles (42 a, b, and c) in Figure 11b and are not adjacent to any wall that forms an angle other than apparently 90°.

Furthermore, claims 4-12, and 23, 24 depend from independent claim 1 and therefore contain all of the limitations of independent claim 1. Likewise, claims 16, 17 and 20-22 depend from independent claim 13 and therefore contain all of the limitations of claim 13.

Because Petersen *et al.* and Cheng *et al.*, alone or in combination, do not teach or suggest walls adjacent to the inlet and/or outlet port having an angle between 100 and 150 degrees with the walls of the inlet and/or outlet port, as recited in claims 1 and 13, the invention is patentable over the cited references.

Accordingly, the Applicants respectfully request that the Examiner withdraw the rejection.

B. Petersen *et al.*, (U.S. 6,391,541) in view of Cheng *et al* (U.S. 6,071,394) and Columbus *et al.*, (EP 0 318255).

The Examiner has rejected claims 2, 3, 15, 18, and 19 as being unpatentable over Petersen *et al.*, in view of Cheng *et al* and Columbus *et al.* The Applicants respectfully traverse this rejection because claims 2, 3 depend from independent claim 1 and therefore include all of the limitations of independent claim 1. Similarly, claims 15, 18, and 19 depend from independent claim 13, and therefore includes all of the limitations of claim 13. Neither independent claim 1 nor 13 have been included in this rejection.

The Examiner cites Petersen *et al.*, and Cheng *et al.*, for the reasons discussed above. The Examiner cites Columbus *et al.*, as teaching that the use of an aluminum foil wall is conventional in the art for providing heat to a thermal cycling device. *See*, Columbus *et al.*, column 7, line 54 to column 8, line 11. However, as discussed above, Peterson *et al.* and Cheng *et al.* do not teach or suggest that the channel walls adjacent to the inlet and/or outlet ports form an angle of 100-150 degrees with the walls of the inlet and/or outlet ports as recited in independent claims 1 and 13. Therefore, Columbus *et al* does not cure the deficiencies of Petersen *et al.*, or Cheng *et al.*, as discussed above.

Accordingly, the Applicants respectfully request that the Examiner withdraw the rejection.

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Amdt. dated July 7, 2006
Reply to Office Action of March 8, 2006

PATENT

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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